

WHAT IS CLAIMED IS:

1 1. A base station node of a radio access network which determines a number of
2 connections for each of plural spreading factors that can be added to the base station
3 node, and which sends to a radio network controller (RNC) node a capacity indication
4 including a capacity value based on the determined number of connections.

1 2. The apparatus of claim 1, wherein the capacity indication includes a vacancy
2 capacity value for each of plural spreading factors.

1 3. The apparatus of claim 2, wherein the capacity indication includes a number
2 of connections that can be added at the base station for each of plural spreading factors.

1 4. The apparatus of claim 1, wherein the capacity indication is a total capacity
2 value calculated using a vacancy capacity value for each of plural spreading factors.

1 5. The apparatus of claim 4, wherein the capacity indication is determined at
2 least in part using Expression 5.

1 6. The apparatus of claim 4, wherein the capacity indication is determined at
2 least in part using Expression 6.

1 7. The apparatus of claim 4, wherein the capacity indication is determined
2 using Expression 7.

1 8. The apparatus of claim 1, wherein the base station tracks usage of base
2 station resources for determining the number of connections that can be added to the
3 base station node.

1 9. The apparatus of claim 1, wherein the capacity indication reports the
2 determined number for a particular spreading factor utilized at the base station node.

1 10. The apparatus of claim 1, wherein the capacity indication reports the
2 determined number separately for uplink transmissions and downlink transmissions
3 relative to the base station node.

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1 11. The apparatus of claim 1, wherein the capacity indication reports the
2 determined number based on a combination of free connections for each of plural
3 spreading factors, and using consumption laws appropriate for each of the spreading
4 factors.

1 12. The apparatus of claim 11, wherein the combination is a weighted
2 combination.

1 13. The apparatus of claim 1, wherein the capacity indication is included in a
2 3GPP "Resource Status Indication" message.

1 14. The apparatus of claim 1, wherein the capacity indication is included in a
2 message which is distinct from a 3GPP "Resource Status Indication" message.

1 15. The apparatus of claim 1, wherein the capacity indication is included in its
2 own dedicated message.

1 16. The apparatus of claim 1, wherein the base station node has plural devices,
2 and wherein the capacity determination is based on a number of free resources per
3 device.

1 17. A method of operating a radio access network, the method comprising:
1 determining, for each of plural spreading factors, a number of connections that
2 can be added to a base station node; and
3 sending a capacity indication to a radio network controller (RNC) node, the
4 capacity indication including a capacity value which is based on the determined number
5 of connections.

1 18. The method of claim 17, further comprising including in the capacity
2 indication as the capacity value a vacancy capacity value for each of plural spreading
3 factors.

1 19. The method of claim 18, further comprising including in the capacity
2 indication as the capacity value a number of connections that can be added at the base
3 station for each of plural spreading factors.

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1 20. The method of claim 17, further comprising including in the capacity
2 indication a total capacity value calculated using a vacancy capacity value for each of
3 plural spreading factors.

1 21. The method of claim 20, wherein the capacity value is determined at least
2 in part using Expression 5.

1 22. The method of claim 20, wherein the capacity value is determined at least
2 in part using Expression 6.

1 23. The method of claim 20, wherein the capacity value is determined using
2 Expression 7.

1 24. The method of claim 17, further comprising tracking at the base station
2 tracks usage of base station resources for determining the number of connections that
3 can be added to the base station node.

1 25. The method of claim 17, wherein the capacity indication reports the
2 determined number for a particular spreading factor utilized at the base station node.

1 26. The method of claim 17, wherein the capacity indication reports the
2 determined number separately for uplink transmissions and downlink transmissions
3 relative to the base station node.

1 27. The method of claim 17, wherein the capacity indication reports the
2 determined number based on a combination of free connections for each of plural
3 spreading factors, and using consumption laws appropriate for each of the spreading
4 factors.

1 28. The method of claim 27, wherein the combination is a weighted
2 combination.

1 29. The method of claim 17, further comprising including the capacity
2 indication in a 3GPP "Resource Status Indication" message.

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1 30. The method of claim 17, further comprising including the capacity
2 indication in a message which is distinct from a 3GPP "Resource Status Indication"
3 message.

1 31. The method of claim 17, further comprising including the capacity
2 indication in its own dedicated message.

1 32. The method of claim 17, wherein the base station node has plural devices,
2 and wherein the capacity determination is based on a number of free resources per
3 device.

1 33. A radio access network for comprising:
2 a radio network controller (RNC) node;
3 a base station node connected to the radio network controller (RNC) node, the
4 base station node determining a number of connections for each of plural spreading
5 factors that can be added to the base station node, and which sends to a radio network
6 controller (RNC) node a capacity indication including a capacity value based on the
7 determined number of connections.

1 34. The apparatus of claim 33, wherein the capacity value included in the
2 capacity indication includes a vacancy capacity value for each of plural spreading
3 factors.

1 35. The apparatus of claim 34, wherein the capacity value included in the
2 capacity indication includes a number of connections that can be added at the base
3 station for each of plural spreading factors.

1 36. The apparatus of claim 33, wherein the capacity value included in the
2 capacity indication is a total capacity value calculated using a vacancy capacity value
3 for each of plural spreading factors.

1 37. The apparatus of claim 36, wherein the capacity value is determined at least
2 in part using Expression 5.

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1 38. The apparatus of claim 36, wherein the capacity value is determined at least
2 in part using Expression 6.

1 39. The apparatus of claim 36, wherein the capacity value is determined using
2 Expression 7.

1 40. The apparatus of claim 33, wherein the base station tracks usage of base
2 station resources for determining the number of connections that can be added to the
3 base station node.

1 41. The apparatus of claim 33, wherein the capacity indication reports the
2 determined number for a particular spreading factor utilized at the base station node.

1 42. The apparatus of claim 33, wherein the capacity indication reports the
2 determined number separately for uplink transmissions and downlink transmissions
3 relative to the base station node.

1 43. The apparatus of claim 33, wherein the capacity indication reports the
2 determined number based on a combination of free connections for each of plural
3 spreading factors, and using consumption laws appropriate for each of the spreading
4 factors.

1 44. The apparatus of claim 35, wherein the combination is a weighted
2 combination.

1 45. The apparatus of claim 33, wherein the capacity indication is included in a
2 3GPP "Resource Status Indication" message.

1 46. The apparatus of claim 33, wherein the capacity indication is included in a
2 message which is distinct from a 3GPP "Resource Status Indication" message.

1 47. The apparatus of claim 33, wherein the capacity indication is included in its
2 own dedicated message.

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- 1 48. The apparatus of claim 33, wherein the base station node has plural devices,
2 and wherein the capacity determination is based on a number of free resources per
3 device.

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